We claim:

1. A method of polarization birefringence compensation in a photonic device with a slab waveguide having a core, comprising:

forming in said slab waveguide a compensator region to minimize the wavelength shift between different polarizations; and

providing a capping layer having a higher refractive index than said core on said compensator region to increase the birefringence contrast between said compensator region and said planar waveguide.

2. A method as claimed as claimed in claim 1, wherein said compensator region is a region of reduced thickness in said slab waveguide.

3. A method as claimed in claim 2, wherein said region of reduced thickness is etched into said slab waveguide.

4. A method as claimed in claim 2, wherein said compensation region is in the form of a prism.

5. A method as claimed in claim 1, wherein said capping layer is silicon nitride.

6. A method as claimed in claim 1, wherein said capping layer is silicon oxynitride.

7. A method as claimed in claim 2, wherein said slab waveguide has a cladding layer over said core, an overcladding layer of cladding material is retained over said core in said compensator region, and said capping layer is formed on said overcladding layer.

8. A method as claimed in claim 1, wherein said slab waveguide is made of glass.

9. A method as claimed in claim 1, wherein the thickness of said capping layer is less than 130 nm.

10. A method as claimed in claim 9, wherein the thickness of said capping layer lies in the range from about 60 nm to about 130 nm.

11. A method as claimed in claim 1, further comprising forming an additional lower refractive index layer to overly said capping layer to reduce the sensitivity of the compensator to variations in deposited layer thicknesses.

12. A method as claimed in claim 11, wherein said additional lower refractive index layer is SiO_2.

13. A method as claimed in claim 11, wherein the thickness of said lower refractive index layer is adjusted to polarization dispersion within target specifications.

14. A photonic device with polarization birefringence compensation, comprising:

a slab waveguide having a core;

a birefringence compensator formed in said slab waveguide to minimize wavelength shift between different polarizations; and

a capping layer on said compensator to increase the birefringence contrast between said compensator region and said planar waveguide, said capping layer having a refractive index higher than said core.

15. A photonic device as claimed in claim 14, wherein said compensator is a region of reduced thickness in said slab waveguide.

16. A photonic device as claimed in claim 15, wherein said region of reduced thickness is etched in said slab waveguide

17. A photonic device as claimed in claim 15, wherein said compensator is in the form of a prism.

18. A photonic device as claimed in claim 14, wherein said capping layer is silicon nitride.

19. A photonic device as claimed in claim 14, wherein said capping layer is silicon oxynitride.

20. A photonic device as claimed in claim 15, wherein said slab waveguide has a cladding layer over said core, an overcladding layer of cladding material is

retained over said core in said compensator region, and said capping layer is formed on said overcladding layer.

21. A photonic device as claimed in claim 15, wherein said slab waveguide is made of glass.

22. A photonic device as claimed in claim 14, wherein the thickness of said capping layer is less than 130 nm.

23. A photonic device as claimed in claim 14, wherein the thickness of said capping layer lies in the range from about 60 nm to about 130 nm.

24. A photonic device as claimed in claim 14, wherein said photonic device is an arrayed waveguide grating demultiplexer.

25. A photonic device as claimed in claim 14, wherein said photonic device is an echelle grating demultiplexer.

26. A photonic device as claimed in claim 14, further comprising a an additional lower refractive index layer overlying said capping layer to reduce the sensitivity of the compensator to variations in the thicknesses of the deposited layers.

27. A photonic device as claimed in claim 26, wherein said additional lower refractive index layer is SiO_2.

28. A photonic device with polarization birefringence compensation, comprising:

a slab waveguide having a core;

a region of reduced thickness in said slab waveguide forming a birefringence compensator to minimize wavelength shift between different polarizations; and

a capping layer on said compensator to increase the birefringence contrast between said compensator region and said planar waveguide, said capping layer having a refractive index higher than said core and being selected from the group consisting of silicon nitride and silicon oxynitride.

29. A photonic device as claimed in claim 28, wherein said region of reduced thickness is etched in said slab waveguide.

30. A photonic device as claimed in claim 28, wherein said capping layer is less than 130 nm thick.

31. A photonic device as claimed in claim 28, further comprising an overcladding layer between said core and said capping layer in said compensator region.

32. A photonic device as claimed in claim 28, wherein the thickness of said capping layer lies in the range from about 60 nm to about 130 nm.

33. A photonic device as claimed in claim 28, further comprising a an additional lower refractive index layer overlying said capping layer to reduce the sensitivity of the compensator to variations in the thicknesses of the deposited layers.

34. A photonic device as claimed in claim 33, wherein said additional lower refractive index layer is SiO_2.